

TA-F120A/F220A

SERVICE MANUAL

AEP Model
UK Model

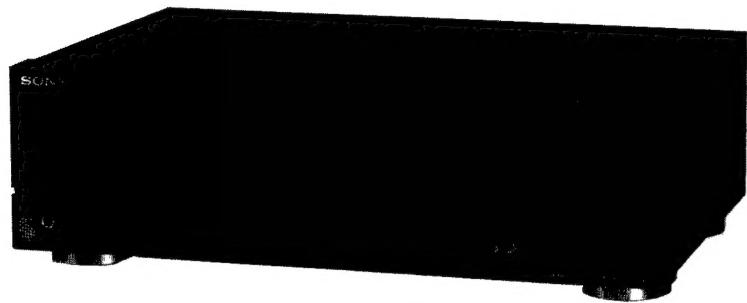


Photo: TA-F220A

SPECIFICATIONS

Amplifier

Continuous RMS power output (both channels driven simultaneously)

| | | TA-F120A | TA-F220A |
|--------------------------|--------|-----------|-----------|
| DIN, 1 kHz | 4 ohms | 40W + 40W | 70W + 70W |
| | 8 ohms | 40W + 40W | 70W + 70W |
| 20 Hz - 20 kHz THD 0.05% | 8 ohms | 30W + 30W | 50W + 50W |

Input

| Input jack | Jack type | Sensitivity | Impedance | S/N (weighting network, input level) |
|--------------------------------|-----------|-------------|------------|--------------------------------------|
| PHONO (MM) | Phono | 2.0 mV | 50 kilohms | 70 dB (A, 2 mV) |
| TUNER, CD, VIDEO/AUX, TAPE/DAT | Phono | 150 mV | 50 kilohms | 100 dB (150 mV) |

Output

| Output jack | Jack type | Voltage/impedance |
|-------------|-------------------|---|
| REC OUT | Phono jacks | Voltage 150 mV Impedance 1 kohms |
| SPEAKERS | — | Accepts speakers of 4 - 6 ohms/8 - 16 ohms. |
| HEAD-PHONES | Stereo phone jack | Accepts low and high impedance headphones. |

Tone controls

| | Response | Turnover frequency |
|--------|----------------|--------------------|
| BASS | ±7 dB (100 Hz) | 500 Hz |
| TREBLE | ±8 dB (15 kHz) | 3 kHz |

Loudness (Attenuation 30 dB) (TA-F220A only)

+6 dB (100 Hz)

+3 dB (10 kHz)

— Continued on next page —

INTEGRATED STEREO AMPLIFIER
SONY®



TA-F120A/F220A

| | |
|---|--|
| Harmonic distortion | Less than 0.05% at rated output |
| Intermodulation (IM) distortion (60 Hz:7 kHz = 4:1) | Less than 0.05% at rated output |
| Frequency response | PHONO: RIAA equalization curve ±0.5 dB TUNER, CD, VIDEO/AUX, TAPE1, TAPE2/DAT: 7 Hz – 100 kHz ±3 dB |
| Residual noise | Less than 170 µV (network A) |
| Damping factor | 40 (8 ohms, 1 kHz) |
| General | |
| System | Preamplifier: Low-noise, high-gain equalizer amplifier Power amplifier: Pure-complementary SEPP OCL power amplifier with all stages directly coupled |
| Power requirements | AEP model: 220V AC, 50Hz UK model: 240V AC, 50Hz |
| Power consumption | AEP model: TA-F120A: 95W TA-F220A: 150W UK model: TA-F120A: 230W TA-F220A: 380W |
| Dimensions | Approx. 430 × 135 × 315 mm (w/h/d) (17 × 5 3/8 × 12 1/2 inches) |
| Weight | AEP model: TA-F120A: Approx. 5.7 kg (12 lb 9 oz) TA-F220A: Approx. 7.4 kg (16 lb 5 oz) UK model: TA-F120A: Approx. 5.6 kg (12 lb 6 oz) TA-F220A: Approx. 6.8 kg (15 lb) |

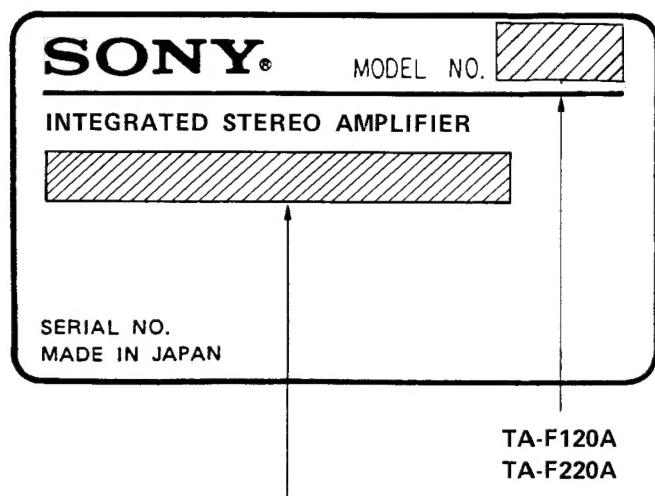
Design and specifications subject to change without notice.

Note

This appliance conforms with EEC directive 87/308/EEC
regarding interference suppression.

MODEL IDENTIFICATION

— Specification Label —



TA-F120A

TA-F220A

AEP Model: AC: 220 V ~ 50/60 Hz

UK Model: AC: 240 V ~ 50/60 Hz

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SAFETY-RELATED COMPONENT WARNING!!

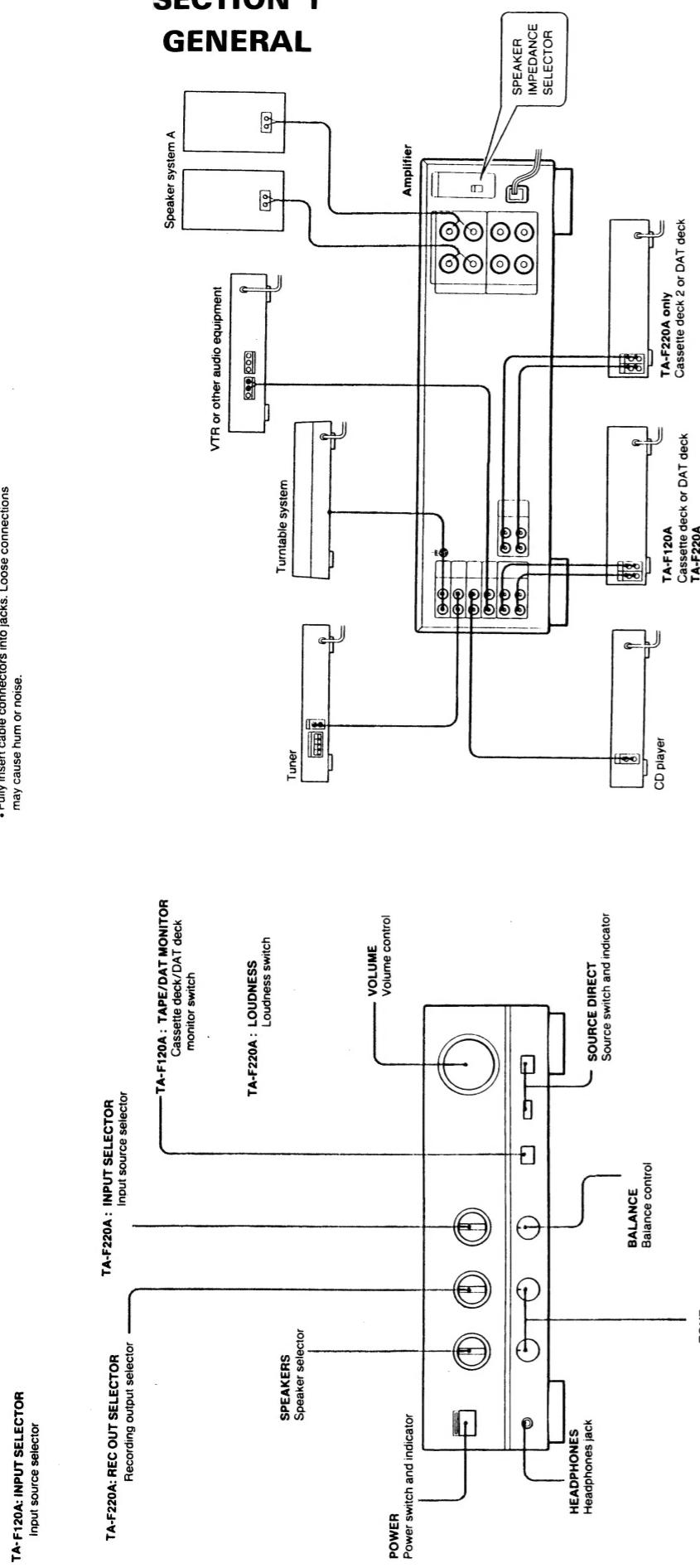
COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

1-1 Parts Identification

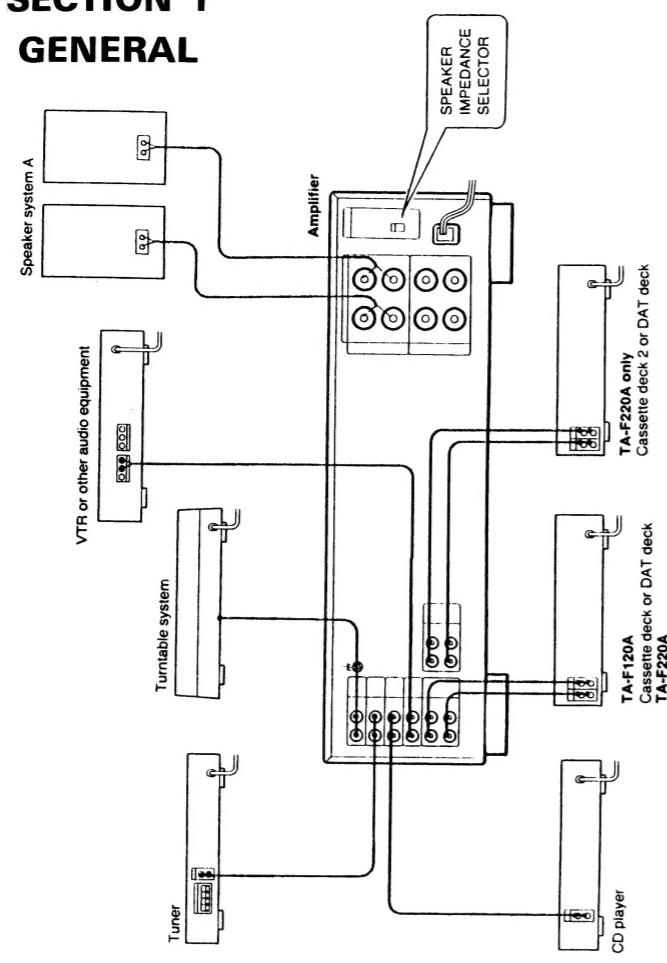
1-2. Connections

Notes on Connection

- Connect the AC power cord last. Make sure power is off.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for left channel (L).
- Fully insert cable connectors into jacks. Loose connections may cause hum or noise.

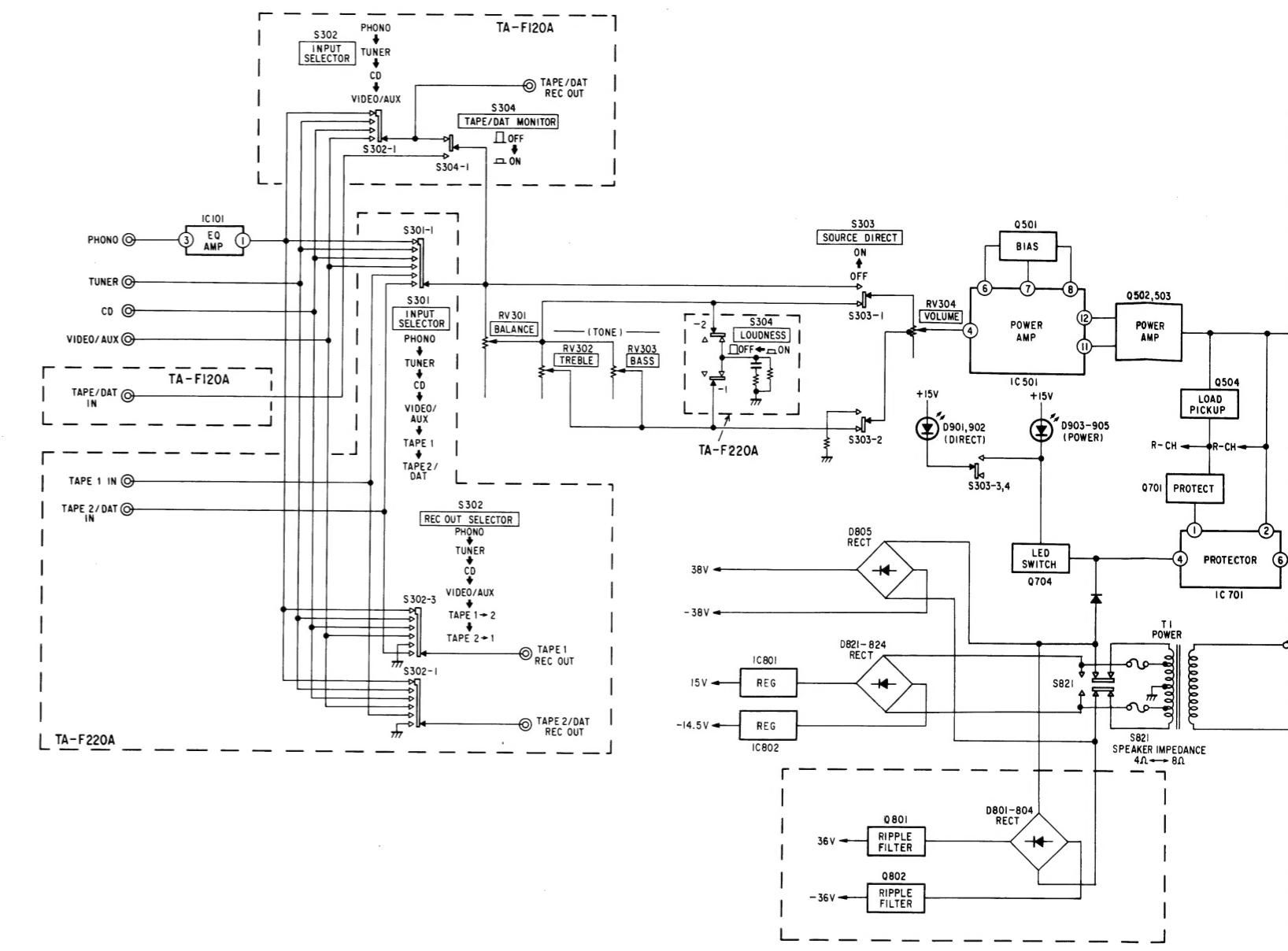


SECTION 1 GENERAL



SECTION 2

BLOCK DIAGRAM

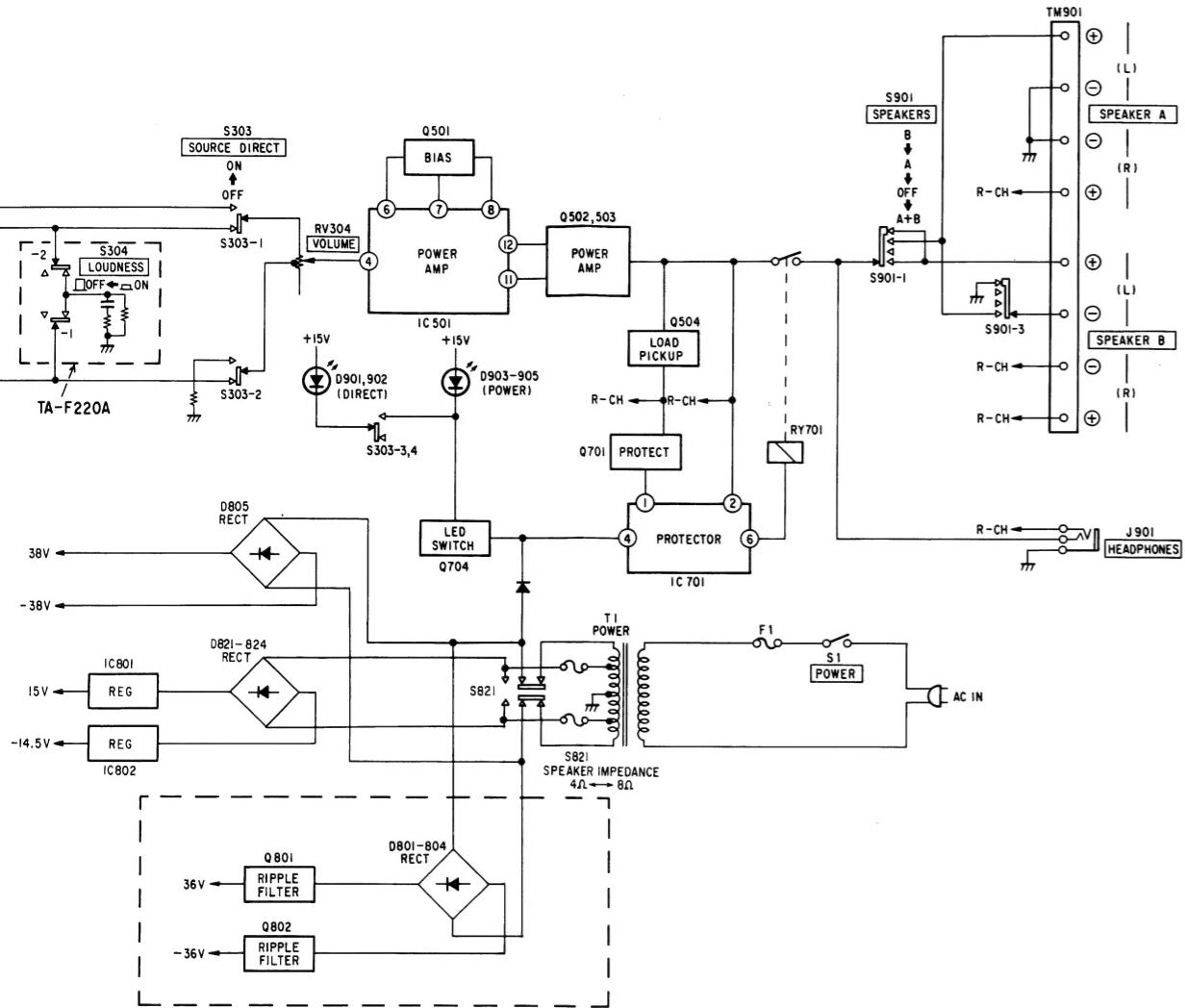


SECTION 3 ELECTRICAL ADJUSTMENTS

SECTION 4 DIAGRAMS

AM

4-1. CIRCUIT BOARDS LOCATIONS



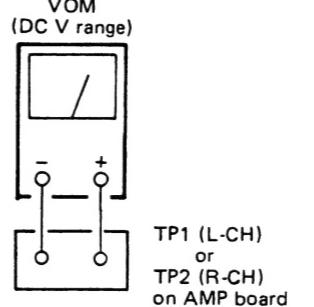
NOTE:

- Adjustment should be performed 10 minutes after the POWER switch is on (POWER ON).

Bias Current Adjustment

Setting:

VOLUME control: minimum

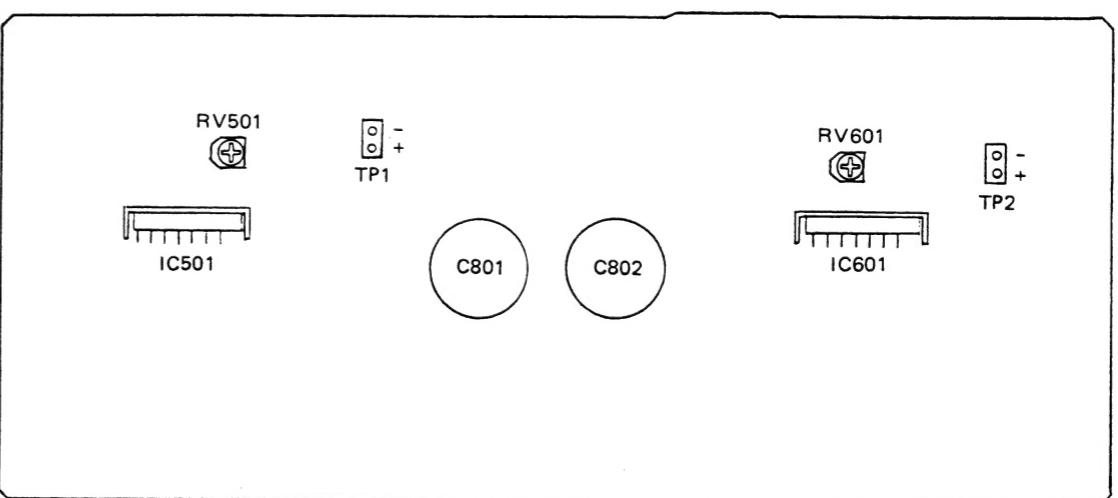


Procedure:

Adjust RV501 (L-CH) and RV601 (R-CH) so as to obtain 4mV (TA-F120A) or 2mV (TA-F220A) at TP1 (L-CH) and TP2 (R-CH) respectively.

Adjustment Location:

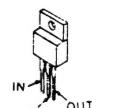
[AMP BOARD] — Component Side —



4-2. SEMICONDUCTOR LEAD LAYOUT

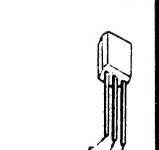
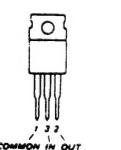
M5F7815

μ PC1237HA



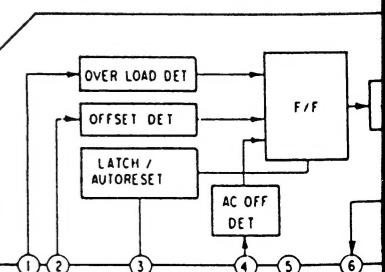
M5F7915

2SA134
2SC260



4-3. IC BLOCK DIAGRAMS

IC701 μ PC1237HA



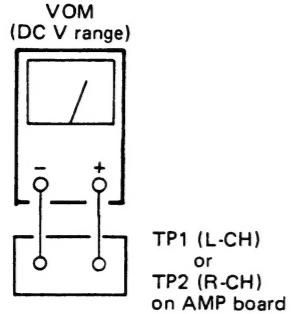
SECTION 3 ELECTRICAL ADJUSTMENTS

NOTE:

- Adjustment should be performed 10 minutes after the POWER switch is on (POWER ON).

Bias Current Adjustment

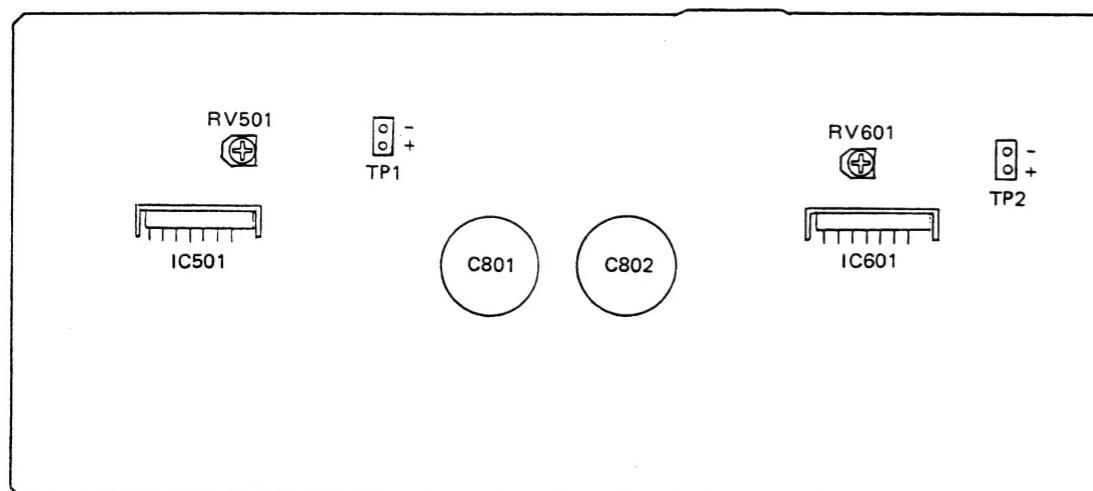
Setting:
VOLUME control: minimum



Procedure:
Adjust RV501 (L-CH) and RV601 (R-CH) so as to obtain 4mV (TA-F120A) or 2mV (TA-F220A) at TP1 (L-CH) and TP2 (R-CH) respectively.

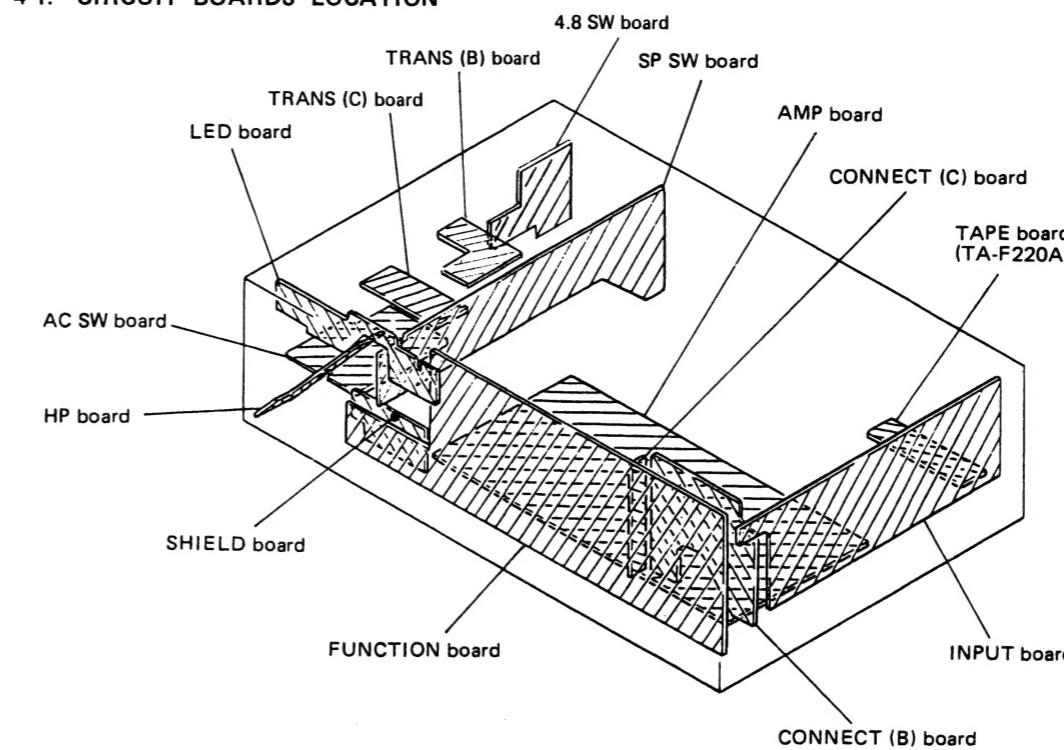
Adjustment Location:

[AMP BOARD] – Component Side –

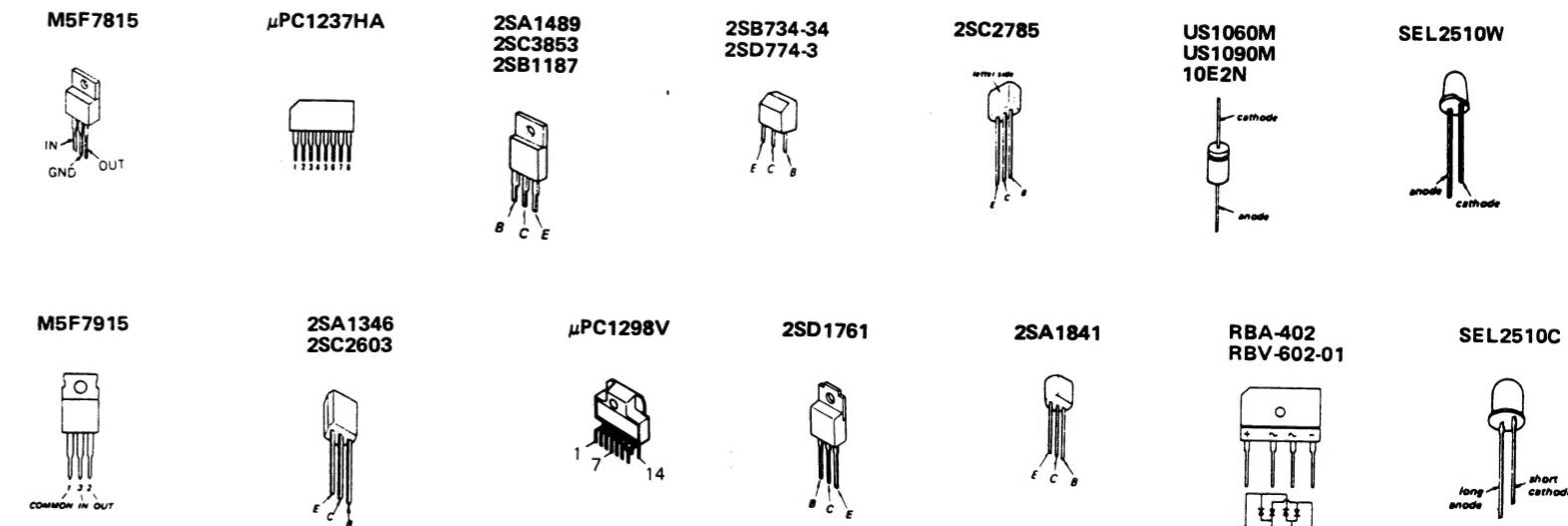


SECTION 4 DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION

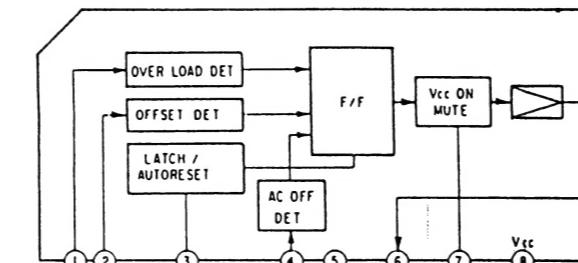


4-2. SEMICONDUCTOR LEAD LAYOUTS



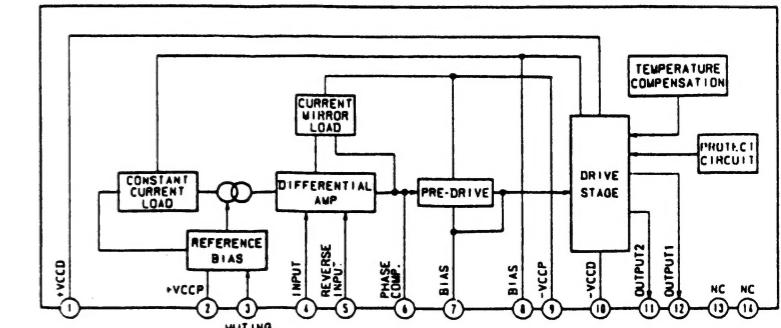
4-3. IC BLOCK DIAGRAMS

IC701 μPC1237HA



— 6 —

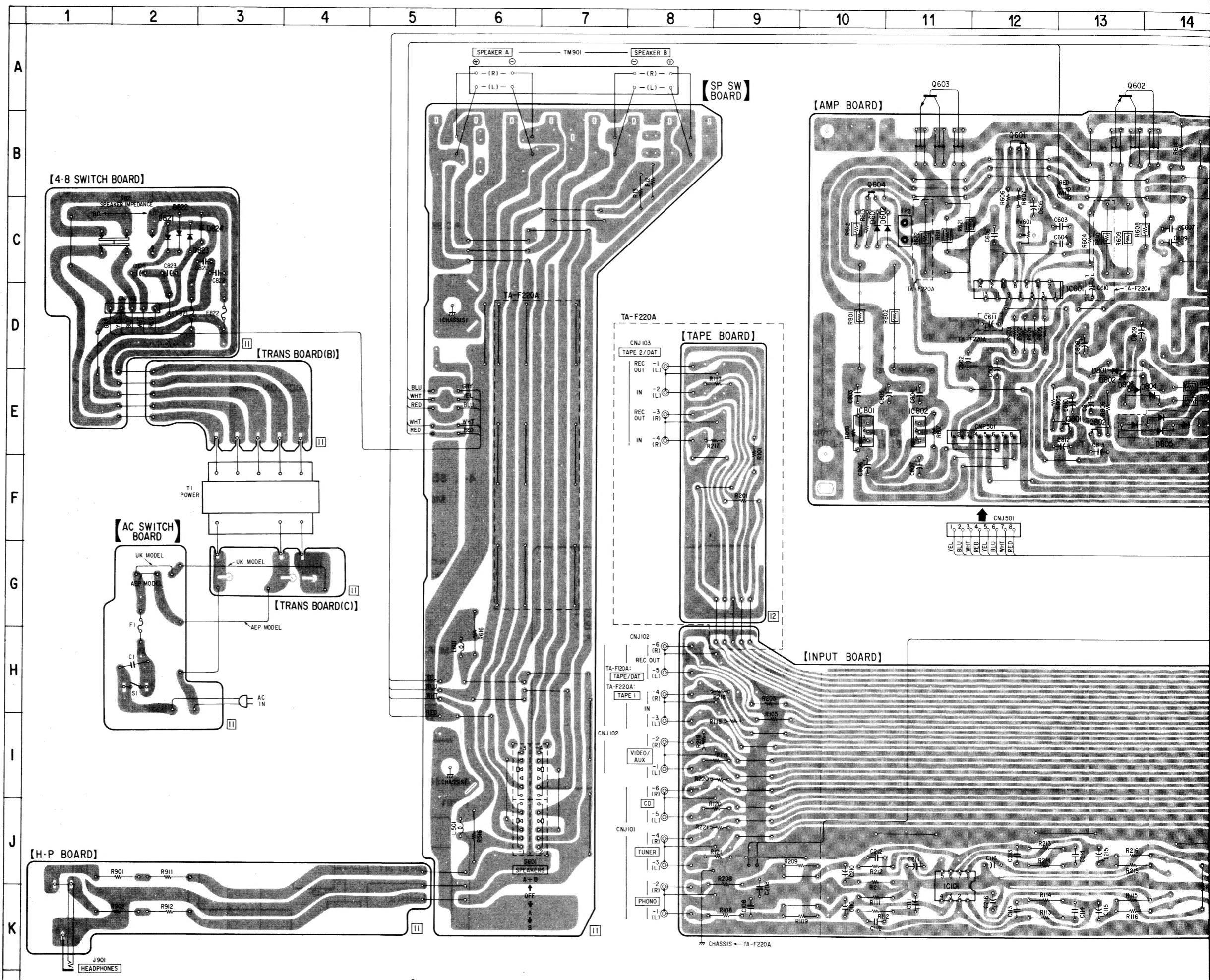
IC501, 601 μPC1298V



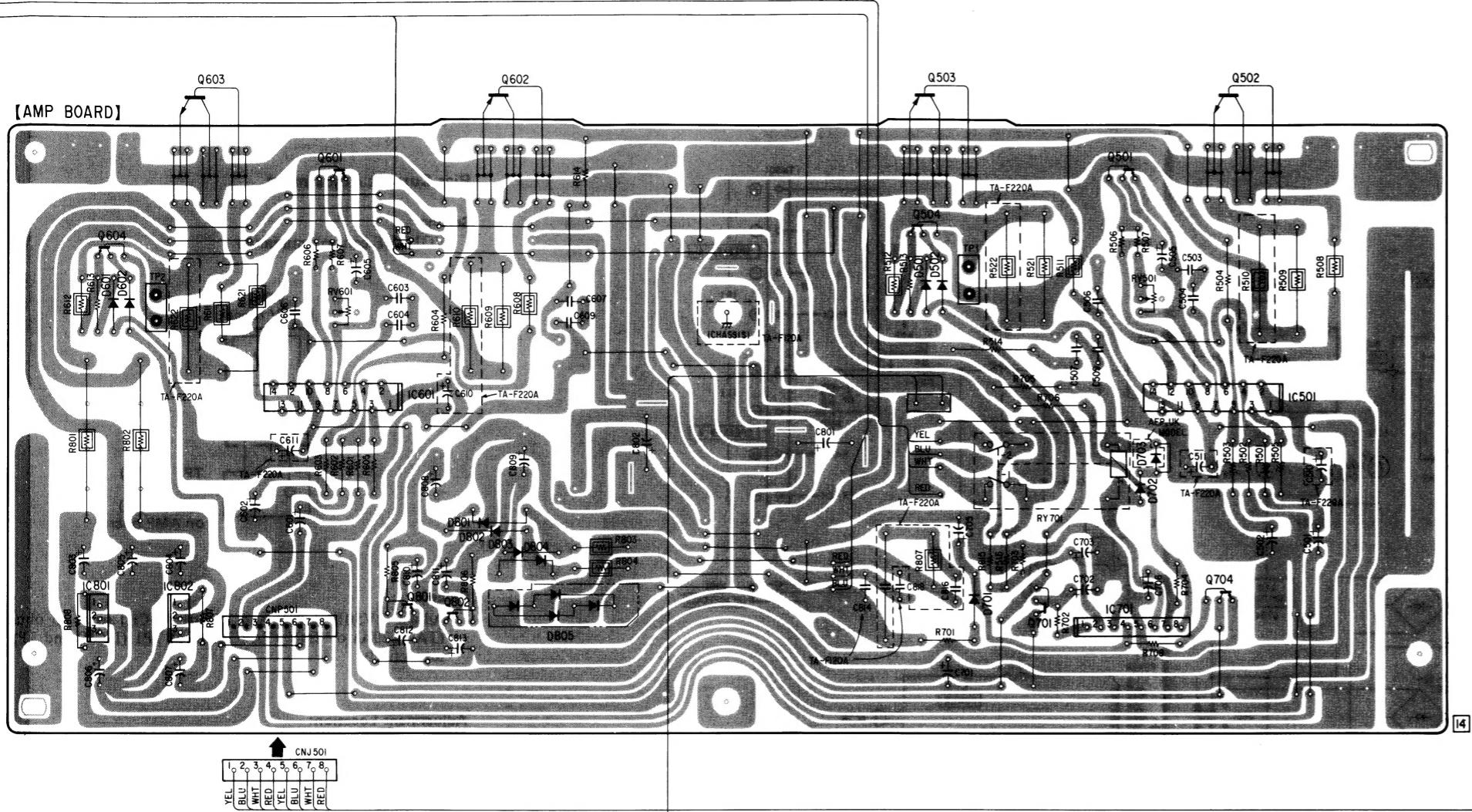
— 7 —

• Semiconductor Location

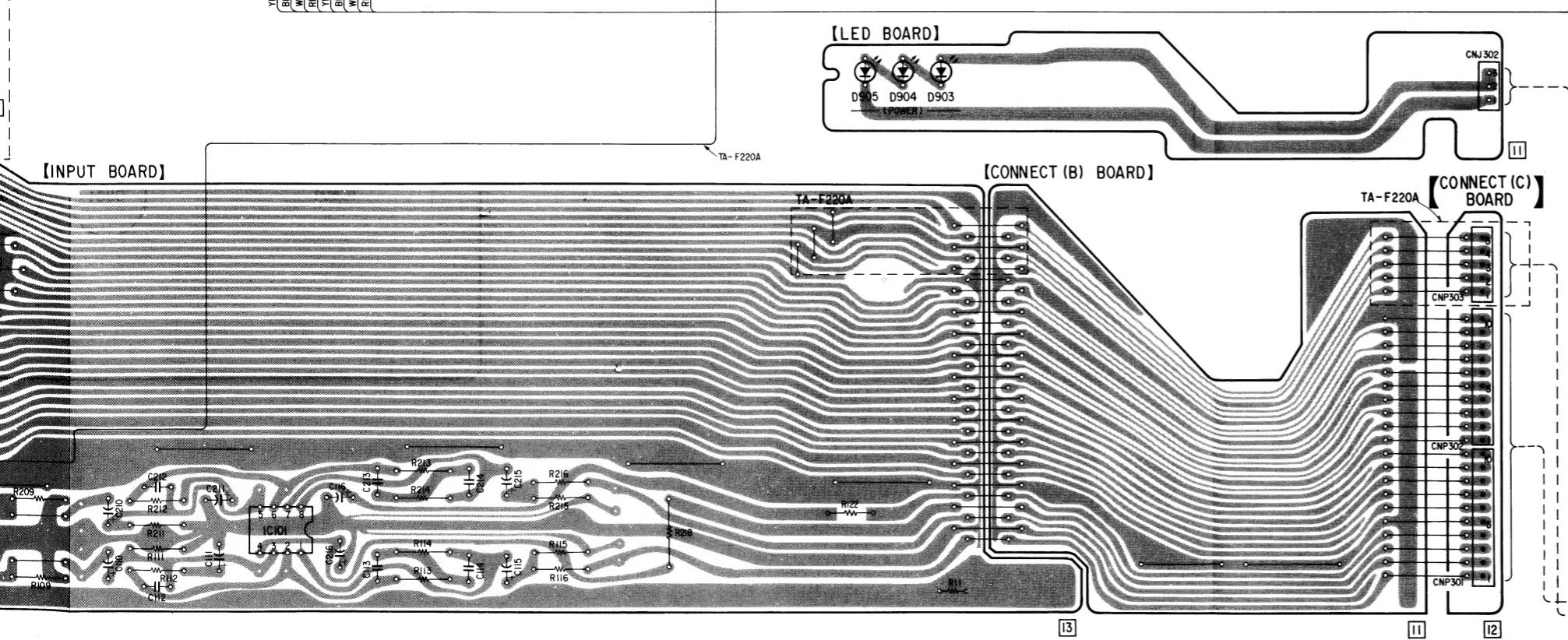
| Ref. No. | Location | Ref. No. | Location |
|--------------|----------|----------|----------|
| D501 | C-16 | IC101 | K-11 |
| D502 | C-17 | IC501 | D-19 |
| D601 | C-10 | IC601 | D-12 |
| D602 | C-10 | IC701 | E-18 |
| D701 | E-17 | IC802 | E-10 |
| D702 | D-18 | IC802 | E-11 |
| D703 | D-18 | | |
| D801 | D-13 | Q501 | B-18 |
| D802 | E-13 | Q502 | A-19 |
| D803 | E-13 | Q503 | A-16 |
| D804 | E-13 | Q504 | B-16 |
| D805 | E-14 | Q601 | B-12 |
| D821 | C-2 | Q602 | A-13 |
| D822 | C-2 | Q603 | A-11 |
| D823 | C-2 | Q604 | B-10 |
| D824 | C-2 | Q701 | E-17 |
| D901 (F120A) | B-32 | Q704 | E-19 |
| D901 (F220A) | G-32 | Q801 | E-13 |
| D902 (F120A) | B-32 | Q802 | E-13 |
| D903 | G-32 | | |
| D904 | G-16 | | |
| D905 | G-16 | | |



10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27



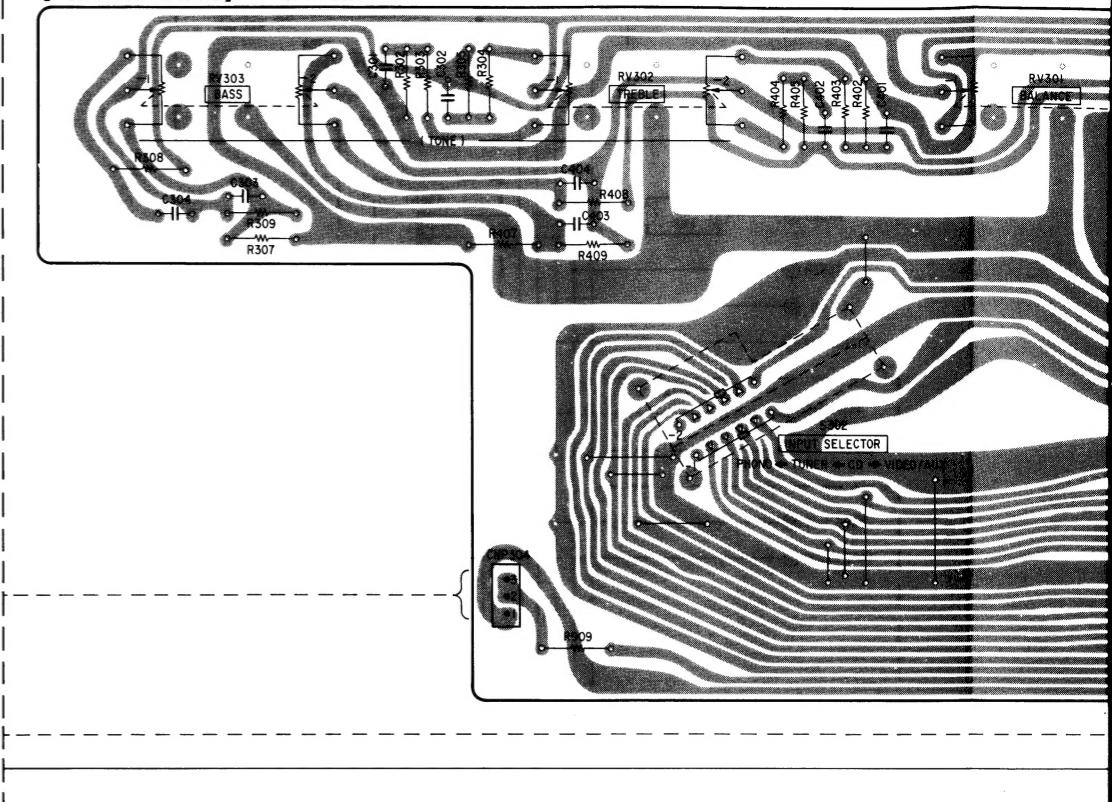
CNJ501
2 3 4 5 6 7 8
YEL BLU WHT RED YEL BLU WHT RED



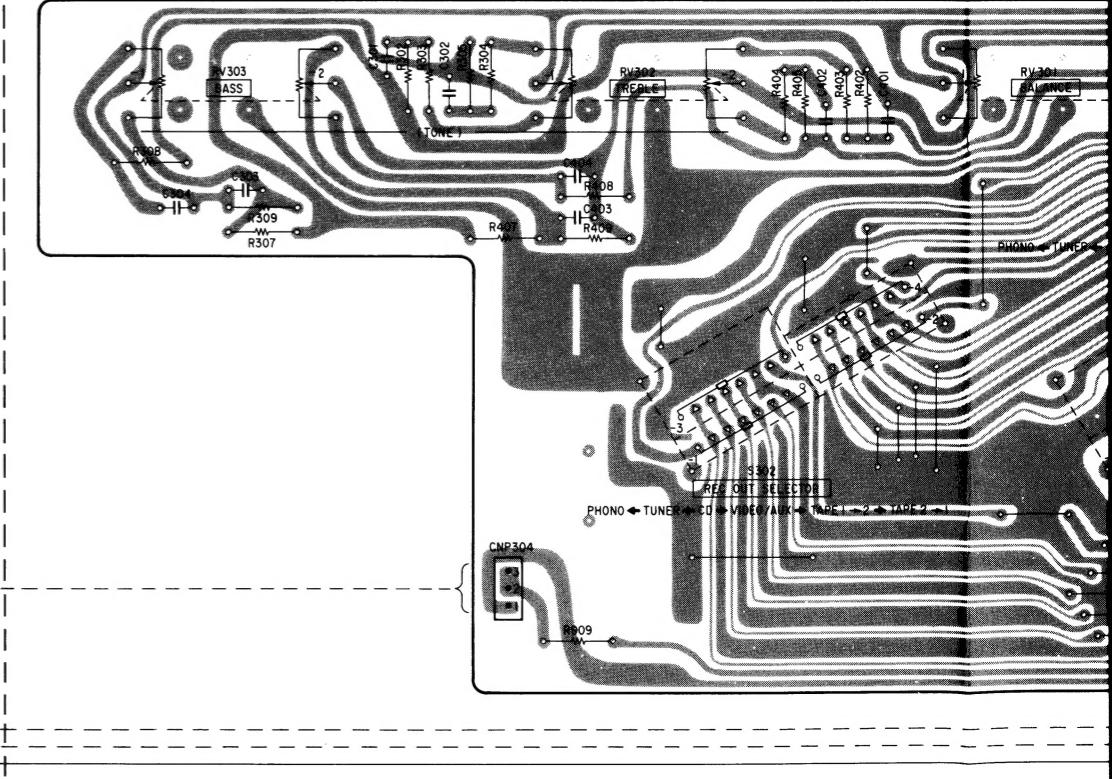
13

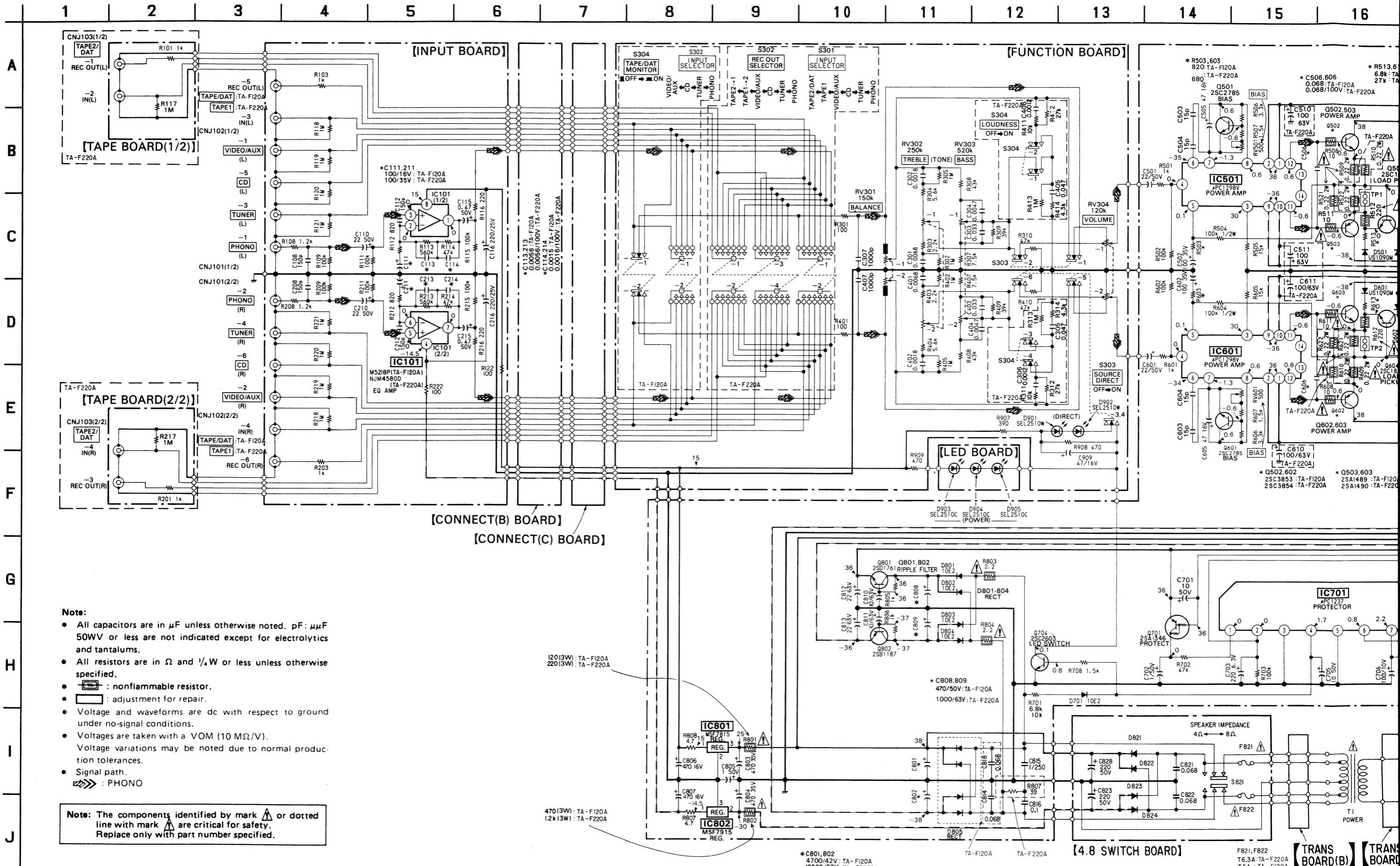
12

[FUNCTION BOARD] TA-F120A

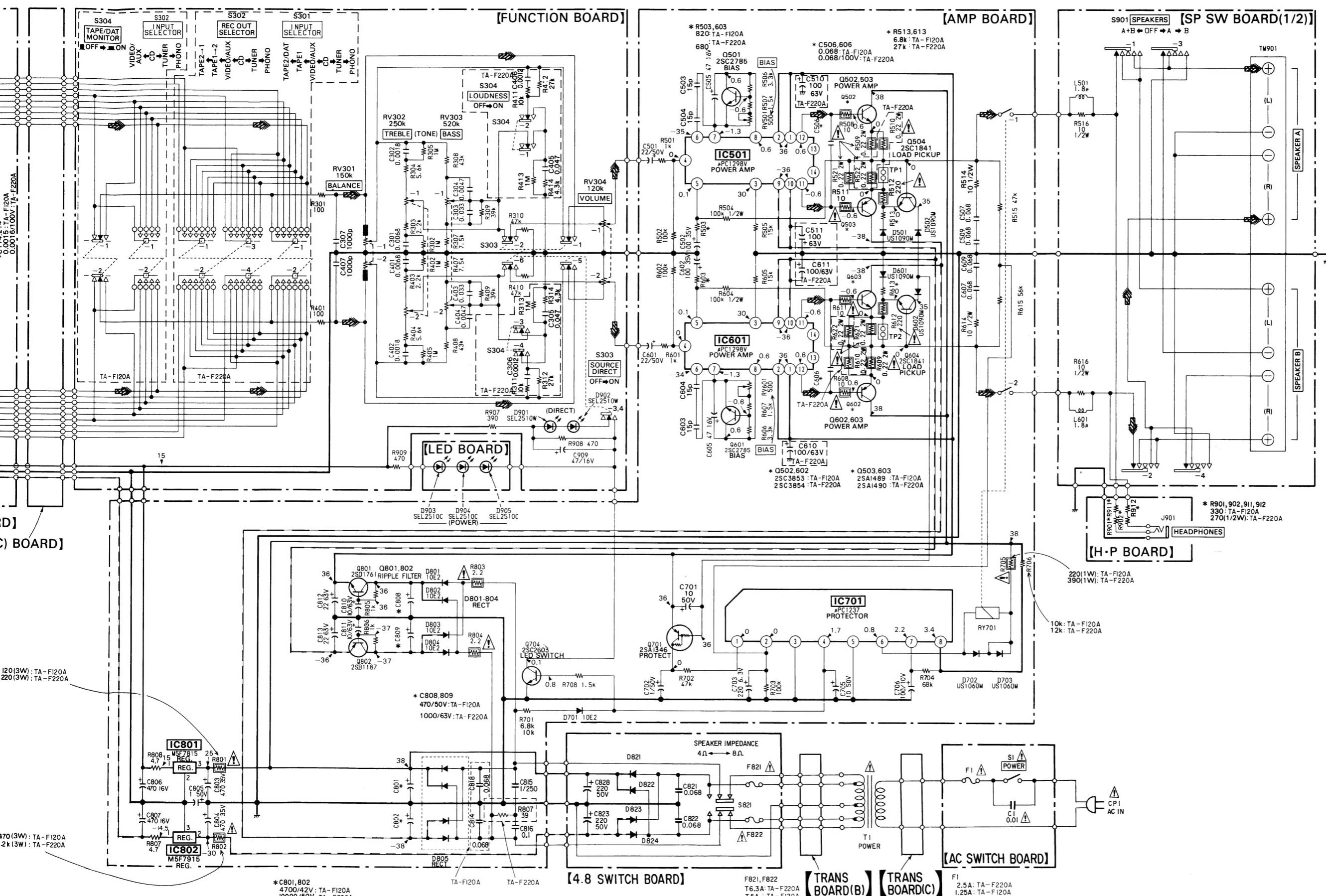


[FUNCTION BOARD] TA-F220A





7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21



SECTION 5

EXPLODED VIEWS

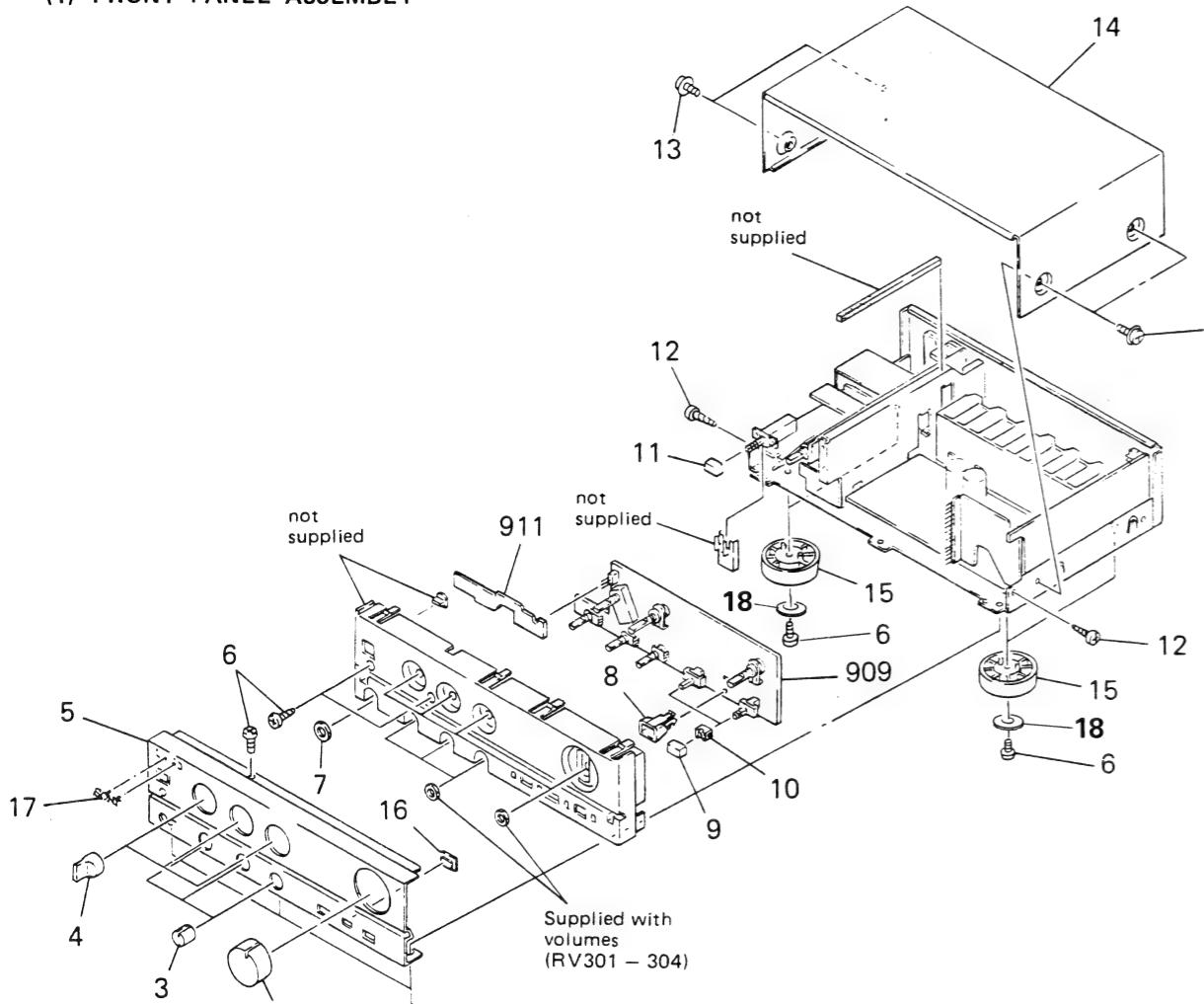
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:
(RED) ... KNOB, BALANCE (WHITE)
↑ Cabinet's Color ↑ Parts Color

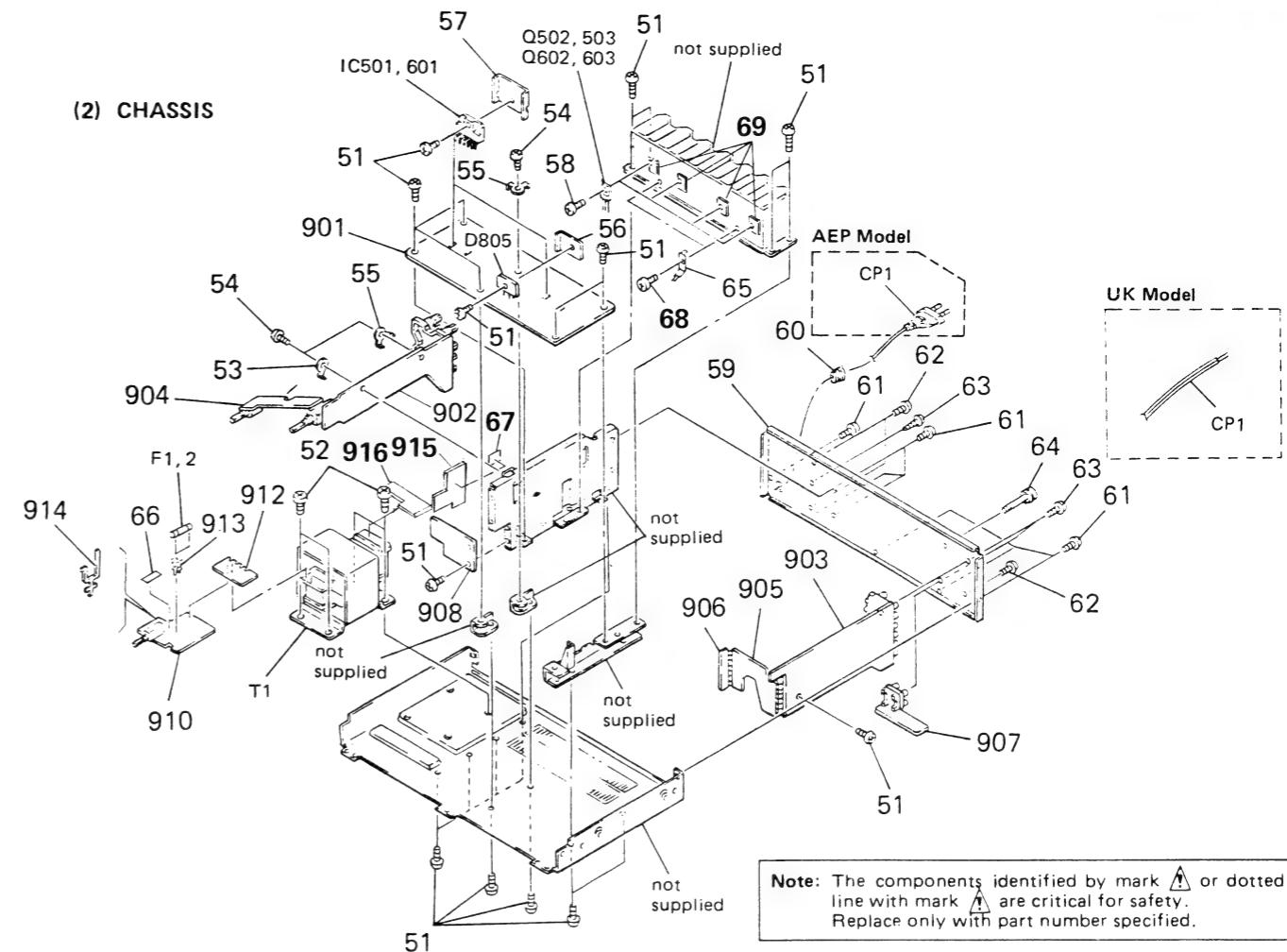
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

(1) FRONT PANEL ASSEMBLY



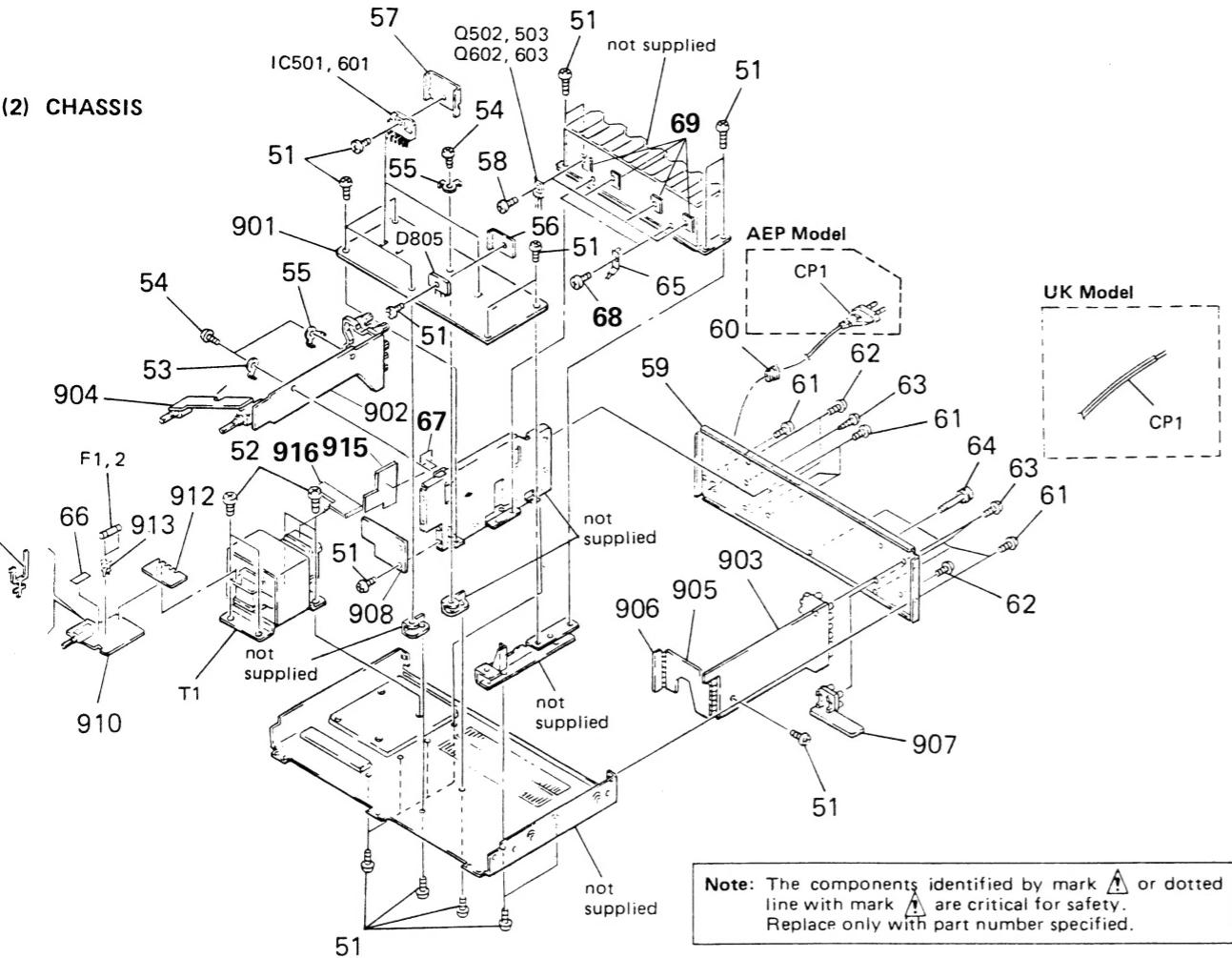
| No. | Part No. | Description | Remarks | No. | Part No. | Description | Remarks |
|-------------------------------------|---------------------------------------|-----------------------|---------|-----|--|---------------------------|---------|
| 1 | 3-703-685-21 | SCREW (+BV 3X8) | | 10 | 4-864-307-00 | RING | |
| 2 | 4-929-288-11 (F120A)...KNOB (VOL. 47) | | | 11 | 4-929-289-01 | BUTTON | |
| 4-929-299-01 (F220A)...KNOB (47) | | | | 12 | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 N-S | |
| 3 | 4-916-746-11 | KNOB (DIA. 21), ROUND | | 13 | 3-704-366-01 | SCREW (CASE) (M3X8) | |
| 4 | 4-916-729-01 | KNOB (DIA. 29) | | 14 | 4-929-294-11 | CASE | |
| 5 | 4-929-293-41 (F120A)...PANEL, FRONT | | | 15 | X-3304-938-2 | FOOT ASSY | |
| 4-929-293-12 (F220A)...PANEL, FRONT | | | | 16 | 4-929-284-01 | PLATE, INDICATION | |
| 6 | 7-682-548-04 | SCREW +BVTT 3X8 (S) | | 17 | 4-908-848-01 | EMBLEM, SONY | |
| 7 | 4-931-902-01 | NUT (M12X1) | | 18 | 4-923-836-11 | CUSHION | |
| 8 | *4-921-389-01 | HOUSE | | 909 | *1-630-937-12 (F220A)...PC BOARD, FUNCTION | | |
| 9 | 4-908-875-01 | KNOB, SQUARE | | | *1-630-941-13 (F120A)...PC BOARD, FUNCTION | | |
| | | | | 911 | *1-630-939-11 (F220A)...PC BOARD, LED | | |
| | | | | | *1-630-943-11 (F120A)...PC BOARD, LED | | |

(2) CHASSIS



SECTION 6

ELECTRICAL PARTS LIST



(2) CHASSIS

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked “★” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μ F, PF: μ F.

RESISTORS

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORS

In each case, U: μ , for example:
UA...: μ A..., UPA...: μ PA...,
UPC...: μ PC, UPD...: μ PD...

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description |
|---------|--------------------------------|--|---------|--------------|---|
| 901 | *A-4334-206-A *A-4334-222-A | (F120A)...MOUNTED PCB, AMPLIFIER (F220A)...MOUNTED PCB, AMPLIFIER | C303 | 1-136-159-00 | FILM 0.033MF 5% 50V |
| 902 | *1-630-930-13 | PC BOARD, SP SW | C304 | 1-130-479-00 | MYLAR 0.0047MF 5% 50V |
| 903 | *1-630-931-13 | PC BOARD, INPUT | C305 | 1-136-161-00 | (F220A)... FILM 0.047MF 5% 50V |
| 904 | *1-630-932-11 | PC BOARD, H.P | C306 | 1-164-086-11 | (F220A)... CERAMIC 0.0012MF 10% 50V |
| 905 | *1-630-933-11 | PC BOARD, CONECT (B) | C307 | 1-164-085-11 | CERAMIC 0.001MF 10% 50V |
| 906 | *1-630-934-12 | PC BOARD, CONECT (C) | C401 | 1-130-481-00 | MYLAR 0.0068MF 5% 50V |
| 908 | *1-630-936-12 | PC BOARD, SHIELD | C402 | 1-130-474-00 | MYLAR 0.0018MF 5% 50V |
| 909 | *1-630-937-12 | (F220A)...PC BOARD, FUNCTION | C403 | 1-136-159-00 | FILM 0.033MF 5% 50V |
| | *1-630-941-13 | (F120A)...PC BOARD, FUNCTION | C404 | 1-130-479-00 | MYLAR 0.0047MF 5% 50V |
| 910 | *1-634-636-11 | PC BOARD, AC SWITCH | C405 | 1-136-161-00 | (F220A)... FILM 0.047MF 5% 50V |
| 911 | *1-630-939-11 *1-630-943-11 | (F220A)...PC BOARD, LED (F120A)...PC BOARD, LED | C406 | 1-164-086-11 | (F220A)... CERAMIC 0.0012MF 10% 50V |
| 912 | *1-634-635-11 | PC BOARD, TRANSFORMER (B) | C407 | 1-164-085-11 | CERAMIC 0.001MF 10% 50V |
| 913 | *1-533-213-31 | HOLDER, FUSE | C501 | 1-126-233-11 | ELECT 22MF 20% 50V |
| 914 | △.1-535-115-00 | TERMINAL | C502 | 1-126-052-11 | ELECT 100MF 20% 35V |
| | △.1-535-115-00 | TERMINAL | C503 | 1-164-023-11 | CERAMIC 15PF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C504 | 1-164-023-11 | CERAMIC 15PF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C505 | 1-124-477-11 | ELECT 47MF 20% 16V |
| | △.1-535-115-00 | TERMINAL | C506 | 1-130-317-00 | (F220A)... FILM 0.068MF 5% 100V |
| | △.1-535-115-00 | TERMINAL | C506 | 1-136-163-00 | (F120A)... FILM 0.068MF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C507 | 1-136-163-00 | FILM 0.068MF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C509 | 1-136-163-00 | FILM 0.068MF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C510 | 1-126-063-00 | (F220A)... FILM 100MF 20% 63V |
| | △.1-535-115-00 | TERMINAL | C511 | 1-126-063-00 | (F220A)... FILM 100MF 20% 63V |
| | △.1-535-115-00 | TERMINAL | C601 | 1-126-233-11 | ELECT 22MF 20% 50V |
| | △.1-535-115-00 | TERMINAL | C602 | 1-126-052-11 | ELECT 100MF 20% 35V |
| | △.1-535-115-00 | TERMINAL | C603 | 1-164-023-11 | CERAMIC 15PF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C604 | 1-164-023-11 | CERAMIC 15PF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C605 | 1-124-477-11 | ELECT 47MF 20% 16V |
| | △.1-535-115-00 | TERMINAL | C606 | 1-130-317-00 | (F220A)... FILM 0.068MF 5% 100V |
| | △.1-535-115-00 | TERMINAL | C606 | 1-136-163-00 | (F120A)... FILM 0.068MF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C607 | 1-136-163-00 | FILM 0.068MF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C609 | 1-136-163-00 | FILM 0.068MF 5% 50V |
| | △.1-535-115-00 | TERMINAL | C610 | 1-126-063-00 | (F220A)... FILM 100MF 20% 63V |
| | △.1-535-115-00 | TERMINAL | C611 | 1-126-063-00 | (F220A)... FILM 100MF 20% 63V |
| | △.1-535-115-00 | TERMINAL | C701 | 1-123-875-11 | ELECT 10MF 20% 50V |
| | △.1-535-115-00 | TERMINAL | C702 | 1-124-791-11 | ELECT 1MF 20% 50V |
| | △.1-535-115-00 | TERMINAL | C703 | 1-126-176-11 | ELECT 220MF 20% 6.3V |
| | △.1-535-115-00 | TERMINAL | C705 | 1-123-875-11 | ELECT 10MF 20% 50V |
| | △.1-535-115-00 | TERMINAL | C706 | 1-124-443-00 | ELECT 100MF 20% 10V |
| | △.1-535-115-00 | TERMINAL | C801 | 1-126-224-11 | (F120A)... ELECT 4700MF 20% 42V |
| | △.1-535-115-00 | TERMINAL | C801 | 1-125-596-11 | (F220A)... ELECT(BLOCK) 10000MF 20% 50V |
| | △.1-535-115-00 | TERMINAL | C802 | 1-126-224-11 | (F120A)... ELECT 4700MF 20% 42V |
| | △.1-535-115-00 | TERMINAL | C802 | 1-125-596-11 | (F220A)... ELECT(BLOCK) 10000MF 20% 50V |
| | △.1-535-115-00 | TERMINAL | C803 | 1-126-104-11 | ELECT 470MF 20% 35V |
| | △.1-535-115-00 | TERMINAL | C804 | 1-126-104-11 | ELECT 470MF 20% 35V |
| | △.1-535-115-00 | TERMINAL | C805 | 1-124-791-11 | ELECT 1MF 20% 50V |
| | △.1-535-115-00 | TERMINAL | C806 | 1-126-103-11 | ELECT 470MF 20% 16V |
| | △.1-535-115-00 | TERMINAL | C807 | 1-126-103-11 | ELECT 470MF 20% 16V |

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description | |
|---|------------------------|---------------------------------------|---------|--|-------------|---|
| C808 | 1-124-913-11 | (F120A)...ELECT | 470MF | 20% | 50V | F1 Δ .1-532-285-00 (F120A)...FUSE, TIME-LAG T1.25A |
| C808 | 1-126-067-11 | (F220A)...ELECT | 1000MF | 20% | 63V | F1 Δ .1-532-286-00 (F220A:AEP)...FUSE, TIME-LAG T2.5A |
| C809 | 1-124-913-11 | (F120A)...ELECT | 470MF | 20% | 50V | F1 Δ .1-532-237-00 (F220A:UK)....FUSE, TIME-LAG T3.15A |
| C809 | 1-126-067-11 | (F220A)...ELECT | 1000MF | 20% | 63V | F821 Δ .1-532-299-00 (F120A)...FUSE, TIME-LAG T5A |
| C810 | 1-126-233-11 | (F120A)...ELECT | 22MF | 20% | 50V | F821 Δ .1-532-325-00 (F220A)...FUSE, TIME-LAG T6.3A |
| C810 | 1-126-059-11 | (F220A)...ELECT | 10MF | 20% | 63V | F822 Δ .1-532-299-00 (F120A)...FUSE, TIME-LAG T5A |
| C811 | 1-126-233-11 | (F120A)...ELECT | 22MF | 20% | 50V | F822 Δ .1-532-325-00 (F220A)...FUSE, TIME-LAG T6.3A |
| C811 | 1-126-059-11 | (F220A)...ELECT | 10MF | 20% | 63V | IC101 8-759-601-02 (F120A)...IC M5218P |
| C812 | 1-126-233-11 | (F120A)...ELECT | 22MF | 20% | 50V | IC101 8-759-711-35 (F220A)...IC NJM4580D |
| C812 | 1-126-060-11 | (F220A)...ELECT | 22MF | 20% | 63V | IC501 8-759-109-06 IC UPC1298V |
| C813 | 1-126-233-11 | (F120A)...ELECT | 22MF | 20% | 50V | IC601 8-759-109-06 IC UPC1298V |
| C813 | 1-126-060-11 | (F220A)...ELECT | 22MF | 20% | 63V | IC701 8-759-111-68 IC UPC1237HA |
| C814 | 1-136-163-00 | (F120A)...FILM | 0.068MF | 5% | 50V | IC801 8-759-604-34 IC M5F7815 |
| C815 | 1-130-798-00 | (F220A)...FILM | 1MF | 10% | 250V | IC802 8-759-604-52 IC M5F7915 |
| C816 | 1-136-165-00 | (F220A)...FILM | 0.1MF | 5% | 50V | J901 1-507-863-51 JACK, LARGE TYPE (HEADPHONES) |
| C818 | 1-136-163-00 | (F120A)...FILM | 0.068MF | 5% | 50V | L501 *1-420-872-00 COIL, AIR CORE |
| C821 | 1-136-163-00 | FILM | 0.068MF | 5% | 50V | L601 *1-420-872-00 COIL, AIR CORE |
| C822 | 1-136-163-00 | FILM | 0.068MF | 5% | 50V | Q501 8-729-119-78 TRANSISTOR 2SC2785-HFE |
| C823 | 1-124-911-11 | ELECT | 220MF | 20% | 50V | Q502 8-729-322-08 (F120A)... TRANSISTOR 2SC3853LF-0Y |
| C828 | 1-124-911-11 | ELECT | 220MF | 20% | 50V | Q502 8-729-321-99 (F220A)... TRANSISTOR 2SC3854LF-0Y |
| C909 | 1-124-477-11 | ELECT | 47MF | 20% | 16V | Q503 8-729-322-11 (F120A)... TRANSISTOR 2SA1489LF-0Y |
| C909 | 1-124-477-11 | ELECT | 47MF | 20% | 16V | Q503 8-729-322-05 (F220A)... TRANSISTOR 2SA1490LF-0Y |
| CN1 | *1-564-321-00 | PIN, CONNECTOR 2P | | Q504 8-729-140-84 TRANSISTOR 2SC1841-PAFAEA | | |
| CNJ101 | 1-565-320-11 | (F120A, F220A: UK)....JACK, PIN 6P | | Q601 8-729-119-78 TRANSISTOR 2SC2785-HFE | | |
| CNJ101 | 1-565-320-61 | (F220A: AEP).....JACK, PIN 6P | | Q602 8-729-322-08 (F120A)... TRANSISTOR 2SC3853LF-0Y | | |
| CNJ102 | 1-565-320-11 | (F120A, F220A: UK)....JACK, PIN 6P | | Q602 8-729-321-99 (F220A)... TRANSISTOR 2SC3854LF-0Y | | |
| CNJ102 | 1-565-320-61 | (F220A: AEP).....JACK, PIN 6P | | Q603 8-729-322-11 (F120A)... TRANSISTOR 2SA1489LF-0Y | | |
| CNJ103 | 1-568-529-21 | (F220A)...JACK, PIN 4P | | Q603 8-729-322-05 (F220A)... TRANSISTOR 2SA1490LF-0Y | | |
| CNJ301 | 1-565-961-11 | SOCKET, CONNECTOR 20P | | Q604 8-729-140-84 TRANSISTOR 2SC1841-PAFAEA | | |
| CNJ302 | *1-565-835-11 | (F120A)...SOCKET, CONNECTOR 3P | | Q701 8-729-900-63 TRANSISTOR DTA124ES | | |
| CNP301 | 1-565-419-11 | PIN, CONNECTOR 10P | | Q704 8-729-620-05 TRANSISTOR 2SC2603-EF | | |
| CNP302 | 1-565-419-11 | {F120A}...PIN, CONNECTOR 10P | | Q801 8-729-920-98 TRANSISTOR 2SD1761-EF | | |
| CNP303 | 1-506-906-11 | (F220A)...PIN, CONNECTOR 5P | | Q802 8-729-920-97 TRANSISTOR 2SB1187-EF | | |
| CNP304 | 1-568-577-11 | (F120A)...PIN, CONNECTOR (PC BOARD)3P | | R11 1-249-405-11 CARBON 100 5% 1/4W | | |
| CNP501 | *1-564-511-11 | PLUG, CONNECTOR 8P | | R12 1-249-405-11 CARBON 100 5% 1/4W | | |
| CNP821 | *1-564-242-00 | PIN, CONNECTOR 5P | | R13 1-249-405-11 CARBON 100 5% 1/4W | | |
| CP1 | Δ .1-574-804-11 | (UK).....CORD, POWER | | R101 1-247-713-11 (F220A)...CARBON 1K 5% 1/4W | | |
| CP1 | Δ .1-574-805-11 | (AEP).....CORD, POWER | | R103 1-247-713-11 CARBON 1K 5% 1/4W | | |
| D501 | 8-719-815-85 | DIODE 1S1585 | | R108 1-247-714-11 CARBON 1.2K 5% 1/4W | | |
| D502 | 8-719-815-85 | DIODE 1S1585 | | R109 1-249-469-11 CARBON 100K 5% 1/4W | | |
| D601 | 8-719-815-85 | DIODE 1S1585 | | R111 1-249-469-11 CARBON 100K 5% 1/4W | | |
| D602 | 8-719-815-85 | DIODE 2S1585 | | R112 1-247-712-11 CARBON 820 5% 1/4W | | |
| D701 | 8-719-200-77 | DIODE 10E2N | | R113 1-246-539-00 CARBON 560K 5% 1/4W | | |
| D702 | 8-719-912-20 | DIODE 1SS120 | | R114 1-249-465-11 CARBON 47K 5% 1/4W | | |
| D703 | 8-719-912-20 | DIODE 1SS120 | | R115 1-249-469-11 CARBON 100K 5% 1/4W | | |
| D801 | 8-719-200-77 | DIODE 10E2N | | R116 1-247-704-11 CARBON 220 5% 1/4W | | |
| D802 | 8-719-200-77 | DIODE 10E2N | | R117 1-247-903-00 (F220A)...CARBON 1M 5% 1/4W | | |
| D803 | 8-719-200-77 | DIODE 10E2N | | R118 1-247-903-00 CARBON 1M 5% 1/4W | | |
| D804 | 8-719-200-77 | DIODE 10E2N | | R119 1-247-903-00 CARBON 1M 5% 1/4W | | |
| D805 | 8-719-312-09 | DIODE RBA-402 | | R120 1-247-903-00 CARBON 1M 5% 1/4W | | |
| D805 | 8-719-312-09 | DIODE RBA-402 | | R121 1-247-903-00 CARBON 1M 5% 1/4W | | |
| D821 | 8-719-200-77 | DIODE 10E2N | | R122 1-247-700-11 CARBON 100 5% 1/4W | | |
| D822 | 8-719-200-77 | DIODE 10E2N | | R201 1-247-713-11 (F220A)...CARBON 1K 5% 1/4W | | |
| D823 | 8-719-200-77 | DIODE 10E2N | | R203 1-247-713-11 CARBON 1K 5% 1/4W | | |
| D824 | 8-719-200-77 | DIODE 10E2N | | R208 1-247-714-11 CARBON 1.2K 5% 1/4W | | |
| D901 | 8-719-304-14 | DIODE SEL2510W (DIRECT) | | R209 1-249-469-11 CARBON 100K 5% 1/4W | | |
| D902 | 8-719-304-14 | DIODE SEL2510W (DIRECT) | | R211 1-249-469-11 CARBON 100K 5% 1/4W | | |
| D903 | 8-719-303-00 | DIODE SEL2510C (POWER) | | R212 1-247-712-11 CARBON 820 5% 1/4W | | |
| D904 | 8-719-303-00 | DIODE SEL2510C (POWER) | | R213 1-246-539-00 CARBON 560K 5% 1/4W | | |
| D905 | 8-719-303-00 | DIODE SEL2510C (POWER) | | R214 1-249-465-11 CARBON 47K 5% 1/4W | | |
| Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified. | | | | | | |
| | | | | | | |
| R215 | 1-249-469-11 | CARBON 100K 5% 1/4W | | | | |
| R216 | 1-247-704-11 | CARBON 220 5% 1/4W | | | | |
| R217 | 1-247-903-00 | (F220A)...CARBON 1M 5% 1/4W | | | | |

TA-F120A/F220A

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description | | | | | | |
|---------|----------------|-----------------------|---------|----------|-------------|------|----------------|-----------------------|------|----|--------|
| R218 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | R513 | 1-247-723-11 | (F120A)...CARBON | 6.8K | 5% | 1/4W |
| R219 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | R513 | 1-249-463-11 | (F220A)...CARBON | 27K | 5% | 1/4W |
| R220 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | R514 | 1-247-727-11 | CARBON | 10 | 5% | 1/2W |
| R221 | 1-247-903-00 | CARBON | 1M | 5% | 1/4W | R515 | 1-249-465-11 | CARBON | 47K | 5% | 1/4W |
| R222 | 1-247-700-11 | CARBON | 100 | 5% | 1/4W | R516 | 1-247-727-11 | CARBON | 10 | 5% | 1/2W |
| R301 | 1-247-700-11 | CARBON | 100 | 5% | 1/4W | R521 | ▲.1-216-361-00 | METAL OXIDE | 0.22 | 5% | 2W F |
| R302 | 1-246-545-00 | CARBON | 1M | 5% | 1/4W | R522 | ▲.1-216-361-00 | (F220A)...METAL OXIDE | 0.22 | 5% | 2W |
| R303 | 1-247-717-11 | CARBON | 2.2K | 5% | 1/4W | R601 | 1-247-713-11 | CARBON | 1K | 5% | 1/4W |
| R304 | 1-247-722-11 | CARBON | 5.6K | 5% | 1/4W | R602 | 1-249-469-11 | CARBON | 100K | 5% | 1/4W |
| R305 | 1-246-545-00 | CARBON | 1M | 5% | 1/4W | R603 | 1-247-712-11 | (F120A)...CARBON | 820 | 5% | 1/4W |
| R307 | 1-247-152-00 | CARBON | 7.5K | 5% | 1/4W | R603 | 1-247-711-11 | (F220A)...CARBON | 680 | 5% | 1/4W |
| R308 | 1-247-170-00 | CARBON | 43K | 5% | 1/4W | R604 | 1-249-496-11 | CARBON | 100K | 5% | 1/2W |
| R309 | 1-249-464-11 | CARBON | 39K | 5% | 1/4W | R605 | 1-249-460-11 | CARBON | 15K | 5% | 1/4W |
| R310 | 1-249-465-11 | CARBON | 47K | 5% | 1/4W | R606 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W |
| R311 | 1-249-429-11 | (F220A)...CARBON | 10K | 5% | 1/4W | R607 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| R312 | 1-249-434-11 | (F220A)...CARBON | 27K | 5% | 1/4W | R608 | ▲.1-247-688-11 | CARBON | 10 | 5% | 1/4W F |
| R313 | 1-247-903-00 | (F220A)...CARBON | 1M | 5% | 1/4W | R609 | ▲.1-216-361-00 | METAL OXIDE | 0.22 | 5% | 2W F |
| R314 | 1-247-846-11 | (F220A)...CARBON | 4.3K | 5% | 1/4W | R610 | ▲.1-216-361-00 | (F220A)...METAL OXIDE | 0.22 | 5% | 2W |
| R401 | 1-247-700-11 | CARBON | 100 | 5% | 1/4W | R611 | ▲.1-247-688-11 | CARBON | 10 | 5% | 1/4W F |
| R402 | 1-246-545-00 | CARBON | 1M | 5% | 1/4W | R612 | ▲.1-247-704-11 | CARBON | 220 | 5% | 1/4W F |
| R403 | 1-247-717-11 | CARBON | 2.2K | 5% | 1/4W | R613 | 1-247-723-11 | (F120A)...CARBON | 6.8K | 5% | 1/4W |
| R404 | 1-247-722-11 | CARBON | 5.6K | 5% | 1/4W | R613 | 1-249-463-11 | (F220A)...CARBON | 27K | 5% | 1/4W |
| R405 | 1-246-545-00 | CARBON | 1M | 5% | 1/4W | R614 | 1-247-727-11 | CARBON | 10 | 5% | 1/2W |
| R407 | 1-247-152-00 | CARBON | 7.5K | 5% | 1/4W | R615 | 1-249-466-11 | CARBON | 56K | 5% | 1/4W |
| R408 | 1-247-170-00 | CARBON | 43K | 5% | 1/4W | R616 | 1-247-727-11 | CARBON | 10 | 5% | 1/2W |
| R409 | 1-249-464-11 | CARBON | 39K | 5% | 1/4W | R621 | ▲.1-216-361-00 | METAL OXIDE | 0.22 | 5% | 2W F |
| R410 | 1-249-465-11 | CARBON | 47K | 5% | 1/4W | R622 | ▲.1-216-361-00 | (F220A)...METAL OXIDE | 0.22 | 5% | 2W |
| R411 | 1-249-429-11 | (F220A)...CARBON | 10K | 5% | 1/4W | R701 | 1-247-723-11 | (F120A)...CARBON | 6.8K | 5% | 1/4W |
| R412 | 1-249-434-11 | (F220A)...CARBON | 27K | 5% | 1/4W | R701 | 1-247-725-11 | (F220A)...CARBON | 10K | 5% | 1/4W |
| R413 | 1-247-903-00 | (F220A)...CARBON | 1M | 5% | 1/4W | R702 | 1-249-437-11 | CARBON | 47K | 5% | 1/4W |
| R414 | 1-247-846-11 | (F220A)...CARBON | 4.3K | 5% | 1/4W | R703 | 1-249-441-11 | CARBON | 100K | 5% | 1/4W |
| R501 | 1-247-713-11 | CARBON | 1K | 5% | 1/4W | R704 | 1-249-439-11 | CARBON | 68K | 5% | 1/4W |
| R502 | 1-249-469-11 | CARBON | 100K | 5% | 1/4W | R705 | ▲.1-215-865-11 | (F120A)...METAL OXIDE | 220 | 5% | 1W F |
| R503 | 1-247-712-11 | (F120A)...CARBON | 820 | 5% | 1/4W | R705 | ▲.1-216-430-11 | (F220A)...METAL OXIDE | 390 | 5% | 1W |
| R503 | 1-247-711-11 | (F220A)...CARBON | 680 | 5% | 1/4W | R706 | 1-247-725-11 | (F120A)...CARBON | 10K | 5% | 1/4W |
| R504 | 1-249-496-11 | CARBON | 100K | 5% | 1/2W | R706 | 1-249-459-11 | (F220A)...CARBON | 12K | 5% | 1/4W |
| R505 | 1-249-460-11 | CARBON | 15K | 5% | 1/4W | R708 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W |
| R506 | 1-249-423-11 | CARBON | 3.3K | 5% | 1/4W | R801 | ▲.1-216-475-11 | (F120A)...METAL OXIDE | 120 | 5% | 3W F |
| R507 | 1-249-419-11 | CARBON | 1.5K | 5% | 1/4W | R801 | ▲.1-215-913-11 | (F220A)...METAL OXIDE | 220 | 5% | 3W |
| R508 | ▲.1-247-688-11 | CARBON | 10 | 5% | 1/4W F | R802 | ▲.1-215-915-11 | (F120A)...METAL OXIDE | 470 | 5% | 3W F |
| R509 | ▲.1-216-361-00 | METAL OXIDE | 0.22 | 5% | 2W F | R802 | ▲.1-216-481-11 | (F220A)...METAL OXIDE | 1.2K | 5% | 3W |
| R510 | ▲.1-216-361-00 | (F220A)...METAL OXIDE | 0.22 | 5% | 2W | | | | | | |
| R511 | ▲.1-247-688-11 | CARBON | 10 | 5% | 1/4W F | | | | | | |
| R512 | ▲.1-247-704-11 | CARBON | 220 | 5% | 1/4W F | | | | | | |

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

| Ref.No. | Part No. | Description | | | | |
|---------|----------------|---|-----|----|------|---|
| R803 | ▲.1-249-451-11 | CARBON | 2.2 | 5% | 1/4W | F |
| R804 | ▲.1-249-451-11 | CARBON | 2.2 | 5% | 1/4W | F |
| R805 | 1-247-713-11 | CARBON | 1K | 5% | 1/4W | |
| R806 | 1-247-713-11 | CARBON | 1K | 5% | 1/4W | |
| R807 | 1-249-455-11 | CARBON | 4.7 | 5% | 1/4W | |
| R808 | 1-249-455-11 | CARBON | 4.7 | 5% | 1/4W | |
| R901 | 1-247-706-11 | (F120A)...CARBON | 330 | 5% | 1/4W | |
| R901 | 1-247-744-11 | (F220A)...CARBON | 270 | 5% | 1/2W | |
| R902 | 1-247-706-11 | (F120A)...CARBON | 330 | 5% | 1/4W | |
| R902 | 1-247-744-11 | (F220A)...CARBON | 270 | 5% | 1/2W | |
| R907 | 1-249-412-11 | CARBON | 390 | 5% | 1/4W | |
| R908 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R909 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | |
| R911 | 1-247-706-11 | (F120A)...CARBON | 330 | 5% | 1/4W | |
| R911 | 1-247-744-11 | (F220A)...CARBON | 270 | 5% | 1/2W | |
| R912 | 1-247-706-11 | (F120A)...CARBON | 330 | 5% | 1/4W | |
| R912 | 1-247-744-11 | (F220A)...CARBON | 270 | 5% | 1/2W | |
| RV301 | 1-238-513-11 | RES, VAR, CARBON 150K/150K (BALANCE) | | | | |
| RV302 | 1-238-514-11 | RES, VAR 250K/250K (TONE:TREBLE) | | | | |
| RV303 | 1-238-515-11 | RES, VAR, CARBON 520K/520K (TONE:BASS) | | | | |
| RV304 | 1-238-512-11 | RES, VAR, CARBON 120K/120K (VOLUME) | | | | |
| RV501 | 1-237-455-11 | RES, ADJ, CARBON 500 | | | | |
| RV601 | 1-237-455-11 | RES, ADJ, CARBON 500 | | | | |
| RY701 | 1-515-533-11 | RELAY | | | | |
| S1 | ▲.1-554-920-21 | SWITCH, PUSH (AC POWER)(1 KEY)(POWER) | | | | |
| S301 | 1-571-871-11 | (F220A)...SWITCH, ROTARY SLIDE (INPUT SELECTOR) | | | | |
| S302 | 1-571-873-11 | (F120A) ... SWITCH, ROTARY SLIDE (INPUT SELECTOR) | | | | |
| S302 | 1-571-873-11 | (F220A) ... SWITCH, ROTARY SLIDE (REC OUT SELECTOR) | | | | |
| S303 | 1-571-828-11 | SWITCH, PUSH (1 KEY)(SOURCE DIRECT) | | | | |
| S304 | 1-571-872-11 | SWITCH, PUSH (1 KEY) (F120A:TAPE/DAT MONITER,F220A:LOUDNESS) | | | | |
| S821 | 1-571-309-31 | SWITCH (SPEAKER IMPEDANCE SELECTOR) | | | | |
| S901 | 1-571-870-11 | SWITCH, ROTARY SLIDDE (SPEAKERS) | | | | |
| T1 | ▲.1-450-060-11 | (F220A)...TRANSFORMER, POWER | | | | |
| T1 | ▲.1-450-061-11 | (F120A)...TRANSFORMER, POWER | | | | |
| TM901 | 1-537-227-11 | TERMINAL BOARD (SPEAKERS A/B) | | | | |

ACCESSORY & PACKING MATERIAL

3-751-336-11 MANUAL, INSTRUCTION
(ENGLISH,FRENCH,SPANISH,PORTUGUESE)
3-751-336-41 MANUAL, INSTRUCTION
(GERMAN,DUTCH,SWEDISH,ITALIAN)

 *4-929-260-01 CUSHION

 *4-931-989-01 (F220A)...INDIVIDUAL CARTON
 *4-931-990-01 (F120A)...INDIVIDUAL CARTON

Note: The components identified by mark ▲ or dotted line with mark ▲ are critical for safety.
Replace only with part number specified.